

# SE MRC College Algebra Content Review

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## Arithmetic Sequences Section 8.2

### Learning Objectives:

1. Find the common difference for an arithmetic sequence.
2. Write terms of an arithmetic sequence.
3. Use the formula for the general term of an arithmetic sequence.
4. Use the formula for the sum of the first  $n$  terms of an arithmetic sequence.

2. Write the first six terms of the arithmetic sequence with the given first term,  $a_1$ , and common difference,  $d$ .

$$a_1 = 300, \quad d = -90$$

$$a_1 =$$

$$a_2 =$$

$$a_3 =$$

$$a_4 =$$

$$a_5 =$$

$$a_6 =$$

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1. Write the first six terms of the arithmetic sequence with the given first term,  $a_1$ , and common difference,  $d$ .

$$a_1 = 500, \quad d = 40$$

$$a_1 =$$

$$a_2 =$$

$$a_3 =$$

$$a_4 =$$

$$a_5 =$$

$$a_6 =$$

3. Use the formula for the general term ( $n$ th term) of an arithmetic sequence to find the 50<sup>th</sup> term of the sequence with the given first term and common difference.

$$a_1 = 8, \quad d = 7$$

$$a_{50} =$$

4. Use the formula for the general term (nth term) of an arithmetic sequence to find the indicated term of the sequence with the given first term,  $a_1$ , and common difference,  $d$ .

Find  $a_{100}$  when  $a_1 = -30$ ,  $d = 5$

$$a_{100} =$$

5. Use the formula for the general term (nth term) of an arithmetic sequence to find the indicated term of the sequence with the given first term,  $a_1$ , and common difference,  $d$ .

Find  $a_{50}$  when  $a_1 = 25$ ,  $d = -2$

$$a_{50} =$$

6. Write the formula for the general term (the nth term) of the arithmetic sequence below. Then use the formula for  $a_n$  to find  $a_{20}$ , the 20<sup>th</sup> term of the sequence.

1, 4, 7, 10, ...

The formula is  $a_n =$

$$a_{20} =$$

7. Write the formula for the general term (the nth term) of the arithmetic sequence  $a_1, a_2, a_3, a_4, \dots$ . Then use the formula for  $a_n$  to find  $a_{20}$ , the 20<sup>th</sup> term of the sequence.

8, 3, -2, -7, ...

$$a_n =$$

$$a_{20} =$$

8. Find the sum of the first 20 terms of the sequence  
3, 9, 15, 21...

$$S_{20} =$$

9. Find the sum of the first 50 terms of the arithmetic sequence below.

-11, -7, -3, 1 ...

**Answer Key:**

1.	$a_1$	500
	$a_2$	540
	$a_3$	580
	$a_4$	620
	$a_5$	660
	$a_6$	700
2.	$a_1$	300
	$a_2$	210
	$a_3$	120
	$a_4$	30
	$a_5$	-60
	$a_6$	-150
3.	351	
4.	465	
5.	-73	
6.	$a_n = 3n - 2 \quad a_{20} = 58$	
7.	$a_n = 13 - 5n \quad a_{20} = -87$	
8.	1200	
9.	4350	

The sum is